

SIMPLE SOLUTIONS

3 Towne Street Montpelier, Vermont 05602 USA

January 7, 2004

Randall Chin
Primary Examiner
Art Unit 1744

Re: 10/045,968

Dear Mr. Chin,

In response to the Office Action Summary I received on October 28, 2003, please find the following amendments and corrections.

1. In response to the drawing objection of the three (3) drawings shown for Fig. 6, I elect to withdraw Fig. 6 in its entirety as it relates primarily to the previously withdrawn claim 19, method for cleaning a chain.
2. In response to amending the "Brief Description of the Drawings," I elect to withdraw the reference to Fig. 6 in the last paragraph in the "Brief Description of the Drawings".
3. In addition, I elect to withdraw the reference to Fig. 6 in the second (2nd) paragraph on page 8 in the "Detailed Description of the Drawings."
4. In addition, I elect to further amend the "Detailed Description of the Drawings," by removing in its entirety the last sentence of the third paragraph on page 7.
5. In response to the objections to Claim 6, I elect to withdraw Claim 6 in its entirety.
6. In response to the misspelled word in Claim 17, line 1, "Claom", please amend to the correct spelling, "Claim."
7. Copies of the preceding amendments are included as they appear in the existing patent application.
8. In response to the objections of the Draftsperson to the drawings, the included drawings are corrected.



Eric Silvers

Amendment 1

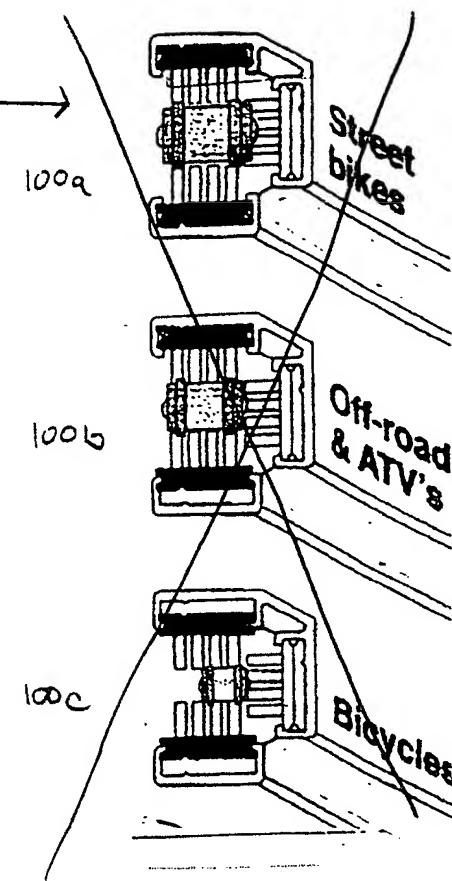
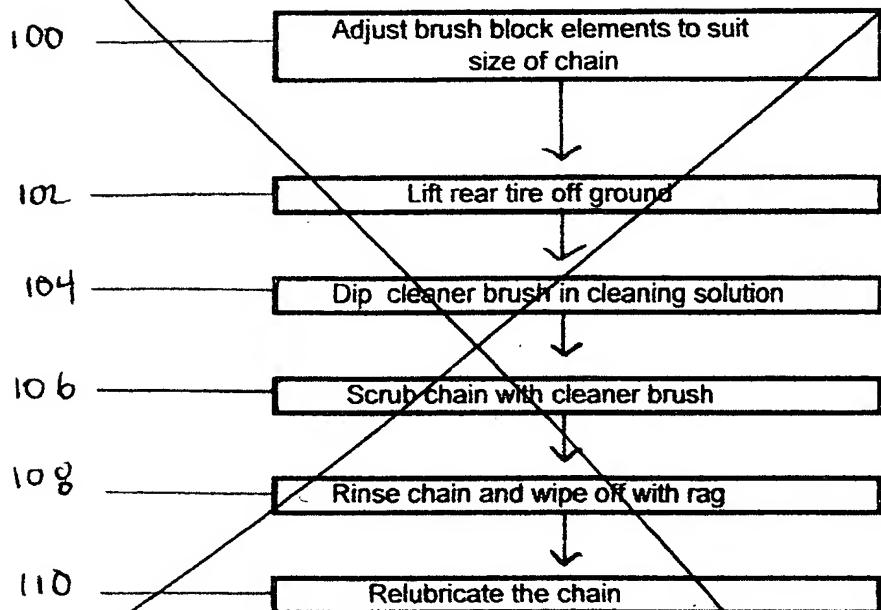


Fig 6

Applicant elects to withdraw Figure 6 in its entirety as it applies to withdrawn claim 1a, method of for cleaning a chain.

Fig. 5b is a side sectional view of the toolhead section of the cleaner brush with the brush block element inserted into the second position, according to the invention.

Amendment 2

* Fig. 6 is a flow chart showing a method of cleaning a chain, according to the invention.

DETAILED DESCRIPTION OF THE INVENTION

The invention provides an adjustable brush for cleaning a drive or sprocket chain. The invention permits the cleaning of such chain without requiring its removal from the vehicle. The invention further provides a convenient means to clean components on bicycles, motorcycle, and similar vehicles that are generally inaccessible.

Fig. 1 is a side view of the cleaner brush 10 according to the invention. A C-shaped toolhead 14 is fixed to a handle 12 whose length keeps the users' hands away from the chain during cleaning, and allows for the opposing cleaning element 15 to clean generally inaccessible areas on bicycles, motorcycles, and similar vehicles. While in the preferred embodiment of the invention, the handle is joined at an angle to the toolhead, this placement may be varied according to the desired use for the brush. A hole 11 may be formed through the handle to permit the cleaner brush to be suspended from a hook. This hole may be molded as a part of the handle, or drilled through the handle after fabrication.

The C-shaped toolhead has at least two opposing inner sides 16,18 with a non-opposing inner side 20 in-between. These inner sides define a chain passage recess 22 within the toolhead. Fig. 2 is a side sectional view showing the adjustable cleaner brush according to the invention. Each inner side has parallel first and second retaining members 24, 26 projecting therefrom and into the recess. The retaining members have parallel and opposing first and second ridges 28,30 depending therefrom, to define a brush block cavity 32. Fig 3 is a side sectional view showing the adjustable cleaner brush according to the invention. The opposing cleaning element 15 has parallel first and second retaining members 24,26 projecting therefrom. The retaining members have parallel and opposing first and second ridges 28,30 depending therefrom to define a brush block cavity 32.

In alternate embodiments of the invention, the toolhead may have any appropriate number of adjacent sides. These sides may be parallel or nonparallel, as desired. Additionally, each inner side is not limited to defining one brush block cavity. In one embodiment of the invention one or more of the inner sides defines a plurality of brush block cavities.

* Applicant elects to withdraw this paragraph in its entirety as it applies to withdrawn Figure 6 and claim 19, method for cleaning a chain.

may thereby be adjusted to proportion the chain passage recess to clean various sizes of chains.

The brush block element may be removed from the brush block cavity when desired by sliding or snapping it out from the retaining members. Brush block elements having different types and sizes of cleaning members may thereby be readily interchanged. In the preferred embodiment of the invention, the cleaning member is a plurality of nylon bristles 48. In an alternate, equally preferred embodiment, the bristles are formed of metal, such as brass, copper, or steel. In alternate embodiments of the invention, the cleaning member includes sponges, meshes, bristles formed of other materials, and abrasive materials (ie. sandpaper). Brush block elements may be provided with different cleaning member or bristle sizes and configurations, according to the particular requirements of the user.

Amendment 3

~~Fig. 6 is a flow chart showing a method of cleaning a chain, according to the invention. The brush block elements are first adjusted (100) to suit the size of the chain (100a, 100b, 100c). The rear tire of the motorcycle is lifted off the ground (102), using an appropriate work stand. The adjustable cleaner brush is then dipped into a cleaning solution (104) and the chain scrubbed (106). The chain is then rinsed with water and wiped off (108) with a rag, and relubricated (110).~~

Although the invention is described herein with reference to the preferred embodiment, one skilled in the art will readily appreciate that other applications may be substituted for those set forth herein without departing from the spirit and scope of the present invention. For example, lubricant may be applied to the chain using a separate set of brush block elements from the cleaner brush block elements. Accordingly, the invention should only be limited by the Claims included below.

* *Applicant elects to remove this paragraph in its entirety as it applies to the withdrawn claim 19, method of cleaning a chain.*

The handle is fabricated by any suitable method, including molding. The toolhead may be formed as an integral part of the handle. In other embodiments of the invention, however, the toolhead is formed separately and joined to the handle by means such as snaps, adhesive or screws. The toolhead may thus be replaced if worn out, defective, or if a different size toolhead is required. The handle and toolhead are preferably formed of plastic, but may also be formed of materials including metal, wood, or ceramic.

A brush block element is provided for removable insertion within each brush block cavity. Fig. 4a is a front view of the brush block element 34 according to the invention. Each brush block element has a substantially rectangular base 36 having an upper side 38 and a lower side 40. A cleaning member 42 is formed by tufting nylon, polypropylene, brass, copper, steel or any other suitable material according to cleaning task at hand, into holes on the upper side 38 of base 36.

Amendment 4

Fig. 4b is a side view of the brush block element according to the invention. In the preferred embodiment of the invention, the brush block element 34 has at least two parallel grooves 44 formed on at least two of the parallel edge sides of the base 36. The parallel grooves are adapted to interengage with the parallel and opposing first and second ridges 28,30 depending from the first and second retaining members 24,26. ~~One or more notches 46 may also be provided in the parallel edge sides of the base such that when interengaged with complementary projections formed on the parallel and opposing first and second ridges 28,30, the brush block element 34 is further secured from movement within the brush block cavity 32.~~

Fig 5a and Fig 5b are side sectional views showing the adjustable cleaner brush according to the invention. The brush block element 34 is inserted into the brush block cavity 32, with the lower side inside the brush block cavity and the cleaning member projecting into the chain passage recess 22. In a first position, Fig. 5a, the base 36 is entirely retained within the brush block cavity 32. In this position, the first and second ridges 28,30 contact the upper side 38 of the base, thereby securing the element. In a second position, Fig. 5b, the grooves 44 of the base 36 are engaged with the complimentary parallel and opposing first and second ridges 28,30 depending from first and second retaining members 24,26, such that a part of the base projects from the brush block cavity and into the chain passage recess 22.

The cleaning member 42 projects further into the chain passage recess in the second position than in the first. The cleaning member may thereby be brought into contact with smaller sized chains. In alternate embodiments of the invention, the base has a plurality of parallel grooves. The brush block element

* Applicant elects to withdraw this sentence in its entirety.

5. The adjustable cleaner brush of Claim 3, wherein at least first and second substantially parallel grooves are defined by said upper side of said base, such that said first groove is adapted for complementary interengagement with said first ridge of one of said retaining members, and said second groove is adapted for complementary interengagement with said second ridge of the other of said retaining members.

* *Amendment 5*
6. ~~The adjustable cleaner brush of Claims 4 and 5, further comprising first and second projections formed on said opposing inner sides of said toolhead, wherein said projections are adapted for interengagement with complementary notches defined in said parallel edge sides of said base.~~

7. The adjustable cleaner brush of Claim 2, wherein said cleaning member is a plurality of bristles.

8. The adjustable cleaner brush of Claim 7, wherein said bristles are formed of nylon.

9. The adjustable cleaner brush of Claim 7, wherein said bristles are formed of metal.

10. The adjustable cleaner brush of Claim 2, wherein said cleaning member is selected from the group consisting of sponges, meshes, and abrasive materials.

11. The adjustable cleaner brush of Claim 1, wherein said brush block element is formed of a material that is resistant to oils, solvents, lubricants and cleansing detergents.

12. The adjustable cleaner brush of Claim 1, wherein said handle defines a hole therethrough.

13. An adjustable cleaner brush, comprising:

a handle;

a toolhead attached to said handle formed into a C-shaped configuration defining a chain passage recess and having at least two opposing inner sides with a non-opposing inner side therebetween;

an opposing cleaning element attached to the end of said handle opposing said toolhead;

at least a first retaining member with a first ridge depending therefrom and at least a parallel, second retaining member having a second ridge depending therefrom and opposed to said first ridge

* *Applicant elects to withdraw claim 6 in its entirety.*

projecting from each inner side of said toolhead and said opposing cleaning element to define a brush block cavity;

a substantially rectangular base having an upper side, a lower side, and two pairs of substantially parallel edge sides, said base dimensioned for removable insertion into said brush cavity;

a cleaning member attached to said upper side of said base such that said cleaning member projects into said recess,

wherein at least one groove is defined by each side of one of said pairs of parallel edge sides, said grooves being substantially parallel to one another and adapted to receive said first and second ridges, such that, in a first position, said first and second ridges retain said base entirely within said brush block cavity and, in a second position, said first and second ridges are received by said parallel grooves to retain said base with a part of said base projecting into said recess, thereby varying the dimensions of said chain passage recess.

14. The adjustable cleaner brush of Claim 13, wherein said cleaning member is a plurality of bristles.
15. The adjustable cleaner brush of Claim 14, wherein said bristles are formed of nylon.
16. The adjustable cleaner brush of Claim 14, wherein said bristles are formed of metal.

*Amendment 6
Claim*

17. The adjustable cleaner brush of ~~Claim 13~~, wherein said cleaning member is selected from the group consisting of sponges, meshes, and abrasive materials.
18. The adjustable cleaner brush of Claim 13, wherein said brush block element is formed of a material that is resistant to oils, solvents, lubricants and cleansing detergents.

19. A method for cleaning a drive chain, comprising the steps of:

providing a cleaner brush having a C-shaped toolhead defining a chain passage recess and having at least two opposing inner sides with a non-opposing inner side therebetween, each of said inner sides defining a brush block cavity;

removably inserting a brush block element having a cleaning member formed theron into each of said brush block cavities such that said cleaning member projects into said chain passage recess;

adjusting the position of said brush block element to vary the dimensions of said chain passage recess to conform to the size of said drive chain;